

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/015570

International filing date (day/month/year)
14.10.2004

Priority date (day/month/year)
15.10.2003

International Patent Classification (IPC) or both national classification and IPC
G06T11/00

Applicant
SONY COMPUTER ENTERTAINMENT INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.
4. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1,4,10,11,12,13
Inventive step (IS)	Yes: Claims	
	No: Claims	1-15
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations

see separate sheet

Re. Section V (Novelty and Inventive step)

1. The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:-

D1 - D5: The documents of the International Search Report in the order as they are listed therein.

2. The various definitions of the invention given in independent claims 1, 4, 10, 11, and 12, 13 are such that the claims as a whole are not clear and concise, contrary to Article 6 PCT. In the present case only a single independent claim per category would appear appropriate.

In particular, no real and effective limitation of claim 4 over claim 1 has been found. The feature "interpolation" in lines 10, 11 of claim 4 is vague, and moreover known from prior art.

3. Claims 1 - 3.

- 3.1 Clarity.

Claim 1 is not fully clear and, moreover, seems to lack support by the description (Art.6 PCT). The claim expressly refers in lines 11-13 to a "connected sequence of pixels" without making it clear what exactly is meant by that term. Usually in the literature this term refers to the so-called "connectivity" between adjacent pixels, see eg the chapters 2.5 and 10.3 of the popular textbook by R.C. Gonzalez and R.E. Woods from which also the citation **D5** has been taken. However, when reading the present description at page 19, lines 9-11 this usual connectivity issue does not seem to be addressed here; rather, the somewhat misleading term seems to merely refer to the more generic issue of "edge detection".

Hence, in the following the lines 9-14 of claim 1 will be interpreted to refer to the detection of the presence and orientation (gradient) of an edge.

3.2 Novelty.

Document **D1** discloses a method of reducing jaggy phenomena of video images including edge detection and low-pass filtering according to edge gradient information; appropriate and previously prepared filters are applied (page 4, line 56 to page 5, line 9; page 5, lines 27 - 50).

Hence, claim 1 lacks novelty over D1.

3.3 Obviousness I.

Re. claim 2, when starting out from **D1**, the notion of zero and non-zero coefficients for such orientation sensitive filters is trivial, see eg **D5**, Figs. 10.8 and 10.9.

Re. claim 3, the link between a particular smoothing filter and the edge gradient is known from D1 and the construction of the filters per se is known in the art, see again eg **D5**.

3.4 Obviousness II.

In another approach, when starting out from Document **D2**, the claims 1-3 lack an inventive step. Document D2 discloses filtering of object edges using appropriate 2D filters (the filter footprint 62 in Fig.2), according to edge information. Contrary to claim 1, D2 has no edge detection in the usual sense, but uses the edge information from the previous rendering stage. However, obtaining the required edge information from filters as in **D1** or **D5**, or as in **D3** (col. 6-8) or **D4** would be obvious.

3.5 Obviousness III.

In yet another approach one may start with document **D4** which discusses in detail filtering of jagged edges (see in particular the pages 238-241 and 251-253). While D4 seems silent as to filtering details, combinations with the edge sensitive filters of **D1** or **D2** (the elliptic filter footprint in Fig.2) would seem obvious.

4. The above objections apply to the other claims accordingly.

5. It is therefore not at present apparent which part of the application could serve as a basis for a novel and inventive claim. Should the applicant nevertheless regard some

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particular matter as patentable an independent claim including such matter should be filed taking account of the correct two-part form if appropriate (Rule 6(3)(b) PCT).

The applicant should also indicate in the letter of reply the difference of the subject-matter of the new claim vis-à-vis the state of the art and the technical significance thereof.

5. If the application is pursued, the following more formal points should also be dealt with:-
- The prior art disclosed in D1, D2 and D4 should be briefly acknowledged in the description (Rule 5.1 (a) (ii) PCT).
 - The statement of invention should be made consistent with the claims.
